

REMARKS

This responds to the Final Office Action dated January 15, 2009.

Claims 132, 137-139, 169, 173, 175, 177, 179, 190, and 199 are amended, claims 174 and 178 are canceled, and no claims are added; as a result, claims 132-134, 137-139, 168-173, 175-177, 179-220 are now pending in this application.

Claims 132, 137-139, 169, 173, 177, 190, and 199 were amended to recite the chemical name of luciferin (see, e.g., page 3, lines 22-23 of the specification), dehydroluciferin, luciferol, or the corresponding derivative thereof, while maintaining the original terms in parentheses after the chemical names, for clarity. Claims 173 and 177 were each amended to recite a composition according to claim 170, which resulted in the cancellation of claims 174 and 178.

Interview Summary

Applicants would like to thank Examiner Susannah Chung for the courtesy extended during the telephonic interview on April 8, 2009 with Applicant's representative Michael H. Haukaas, Reg. No. 57,111. The § 112 rejections of the pending claims were discussed during the interview.

Applicants' attorney discussed that the Office Action indicated claim 132 was directed to a compound "without limitation". Applicant's attorney noted that the claim is directed to a structural derivative of luciferin that has a specific group of substituents at the 6' position of the luciferin backbone. Thus the claim is not directed to a compound "without limitation" and the metes and bounds of the 6' substitution of the compound are specifically recited. Examiner Chung indicated that the claim would be reviewed in light of the recited structural description.

Applicants' attorney proposed to add the chemical name of luciferin, "(4S)-4,5-dihydro-2-(6-hydroxy-benzothiazolyl)-4-thiazolecarboxylic acid", before each recitation the term "luciferin" in the claims. Similar amendments were proposed with respect to the terms "dihydroluciferin", "luciferol", "analog of luciferin", and other chemical names that include the term luciferin. Examiner Chung indicated that such amendments would be considered and would potentially overcome the corresponding § 112 rejections.

Applicants' attorney also proposed to amend claims 132, 169, 190, and 199 to omit substituents or R₁ groups that include 6'-amino groups, and to again cite support for the remaining substituents and R₁ groups. Examiner Chung indicated that such amendments and statements would be considered and would potentially overcome the corresponding § 112 rejections.

§ 112 Rejection of the Claims, First Paragraph

Claims 132-134, 137-139 and 168 were rejected under 35 U.S.C. § 112, first paragraph, for allegedly lacking adequate description or enablement. This rejection is respectfully traversed.

Claims 133-134 and 168 depend upon claim 132. As discussed in the Examiner Interview Summary above, claim 132 is directed to a 6' structural derivative of luciferin that has a specific group of substituents at the 6' position of the luciferin backbone. The metes and bounds of the compound of claim 132 and specifically the 6' substitution of the compound are recited in the claim (e.g., the last seven lines of the claim). Thus, the claim is not directed to a compound "without limitation". Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Applicants note that claim 137 is an independent claim that recites nine specific compounds. The rejection is not believed to apply to claim 137, and its dependent claims 138-139. Accordingly, withdrawal of the rejection of claims 137-139 is also respectfully requested.

§ 112 Rejection of the Claims, Second Paragraph

Claims 132, 137, 138, 139, 169, 173 and 177 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This rejection is respectfully traversed.

On page 2 of the Office Action, claims 132, 137, 138, 139, 169, 173 and 177 were rejected because they allegedly recite a trademark or trade name (luciferin, luciferol, and/or dehydroluciferin). As discussed in Applicants' response filed October 20, 2008, the terms luciferin, luciferol, and dehydroluciferin are not trademarks, therefore *Ex Parte Simpson* (cited in the Office Action dated July 18, 2008) does not support the rejection and is not applicable to Applicants' claim terms. Also, the terms are well known in the art and are defined in the

specification. However, to facilitate allowance of the application, claims 132, 137, 138, 139, 169, 173 and 177 have been amended to add the corresponding chemical nomenclature before the terms luciferin, luciferol, and dehydroluciferin. The chemical name for luciferin, "(4S)-4,5-dihydro-2-(6-hydroxy-benzothiazolyl)-4-thiazolecarboxylic acid", is recited at page 3, lines 22-23 of the specification. Corresponding chemical names were added to the claims before each term that included a reference to luciferin, luciferol, or dehydroluciferin. The recitation of the chemical nomenclature removes any perceived indefiniteness, therefore the rejection is no longer appropriate. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

§ 112 Rejection of the Claims, First Paragraph

On page 3 of the Office Action, claims 132-134, 137-139 and 168-180 were rejected under 35 U.S.C. § 112, first paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because the substituents are allegedly not well defined. This rejection is respectfully traversed.

Applicants strongly disagree with the rejection, however to facilitate allowance of the claims, the substitutions at the 6' hydroxy site of the compounds of claims 132 and 190 and the list of variables for R₁ in claims 169 and 199 were amended to recite various oxygen linked substituent groups as described and illustrated in the specification. For example, a C₁₋₂₀ alkoxy substituted by halo is described at least at page 18, lines 4-5, at page 57, line 24, and in Figure 2 (luciferin 6' 2-chloroethyl ether). Other substituted C₁₋₂₀ alkoxy can be readily prepared by replacing 1-bromo-2-chloroethane (recited at page 53, line 22) with the corresponding 1-bromo-2-hydroxyalkane, 1-bromo-2-aminoalkane, 1-bromo-2-cyanoalkane, 1-bromo-2-heteroarylalkane, or 1-bromo-2-(haloalkyl)arylalkane, or protected versions thereof. The C₃₋₂₀ alkynloxy and cycloalkoxy groups are described at least at page 18, line 7, and can also be prepared as described above, for example, using the methods to prepare 2-cyanobenzothiazole derivatives described at page 52, line 19 to page 57, line 2, and the general procedure described at page 57, lines 4-16.

Further specific examples include C₁₋₂₀ alkoxy groups substituted by heteroaryl, such as luciferin 6' 2-picolinyl ether (described at least at page 19, line 1, at page 58, line 31, and in

Figure 2), luciferin 6' 3-picolinyl ether (described at least at page 19, line 2, and in Figure 2), and luciferin 6' 4-picolinyl ether (described at least at page 18, line 29, at page 59, line 10, and in Figure 2). A specific C₁₋₂₀ alkoxy group substituted by aryl substituted with haloalkyl is luciferin 6' 4-trifluoromethylbenzyl ether, described at least at page 18, line 30, at page 58, line 1, and in Figure 2. Specific C₁₋₂₀ alkenyloxy groups are described at least at page 19, lines 8 and 9, at page 58, lines 16 and 22, and in Figure 2 (luciferin 6' geranyl ether and luciferin 6' prenyl ether). Accordingly, the specification provides ample written description and enablement for the scope of independent claims 132, 137, 169, and 190. Reconsideration and withdrawal of the rejection is respectfully requested.

§ 112 Rejection of the Claims, Second Paragraph

Claims 132-134, 137-139 and 168-180 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This rejection is respectfully traversed.

At page 3, second paragraph, the Office Action asserted that claims 132, 137, 138, 139, 169, 173 and 177 were rejected as being indefinite because the substituents are allegedly not well defined. The Office Action refers to the previous Office Action mailed July 18, 2008, pages 7-8. Page 8 of the July 18, 2008 Office Action recites that "the definition of R₁ must contain oxygen and cannot be substituents such as hydrogen alone." While Applicants strongly disagree with the Examiner's assertion, the claims have been amended to comply with this suggestion. Specifically, the 6' hydroxy site substituents of the compounds of claims 132 and 190 and the list of variables for R₁ in claims 169 and 199 have been amended to omit 6' or R₁ groups that are linked to the benzo ring of the luciferin skeleton by a nitrogen atom. Thus, each of the recited 6' hydroxy site substituents and R₁ groups contain oxygen as the linking atom (as currently amended). Accordingly, the substituents of claims 132, 137, 138, 139, 169, 173 and 177 are well defined. Reconsideration and withdrawal of the rejection is respectfully requested.

Double Patenting Rejection

Claims 132-142 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-24, 68-71 and 91 of copending U.S. Patent Application No. 11/444,145. This rejection is respectfully traversed.

Applicants note that claims 135-136 and 140-142 have been cancelled, therefore the rejection does not apply to those claims.

As noted by the Examiner at page 3 of the Office Action, third paragraph, the instant application is senior to copending Application No. 11/444,145. Because the claims are believed to be in condition for allowance, Applicants respectfully request withdrawal of this provisional rejection, and allowance of the claims.

Allowable Subject Matter

Claims 181-189 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants thank the Examiner for this favorable assessment. Each of the remaining rejections is believed to be overcome by the amendments and remarks herein, as discussed above. Accordingly, allowance of each of the pending claims is respectfully requested.

Request for Rejoinder

In responses filed July 24, 2006, June 19, 2008, and October 20, 2008, Applicants requested rejoinder of the withdrawn claims upon a notice of allowable subject matter for the claims under examination. Applicants believe that claims 132-134, 137-139, 168-173, 175-177, and 179-189 are now in condition for allowance. Accordingly, the Examiner is respectfully requested to rejoin the subject matter of original claims 116-126 and 130-131 ("kit" claims), which now correspond to claims 190-220. The subject matter of original kit claims 116-126 and 130-131 has been amended in a manner corresponding to the amendments to the elected compound claims (see, e.g., compound claim 132 and kit claim 190, and compound claim 169 and kit claim 199). Rejoinder, examination, and allowance of claims 190-220 is respectfully requested.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative at (612) 359-3270 to facilitate prosecution of this application.

If necessary, please charge any additional fees or deficiencies, or credit any overpayments to Deposit Account No. 19-0743.

Respectfully submitted,

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Date 4/15/2009

By 

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on April 15, 2009.

Name Dawn M. Poole

Signature 